

## REMOTE ACTUATING DEVICE FOR PRESSURIZED DISPENSERS

### FIELD OF THE INVENTION

The present invention relates to pressurized dispensers. More particularly,  
5 the present invention relates to a remote actuating device for a pressurized dispenser, such as an aerosol paint dispenser.

### BACKGROUND OF THE INVENTION

In many instances a pressurized dispenser, such as an aerosol paint  
10 dispenser or insect killer, needs to be dispensed at a high location. In the past, it has generally been required to climb a ladder to dispense the pressurized dispenser. However, some locations are too high to be reached with a ladder and others are located in areas where climbing a ladder is hazardous. Still, in other situations, such as when spraying bee killer, it is necessary to vacate the area  
15 quickly after spraying the pressurized dispenser to avoid the agitated bees.

Other attempts have been made providing remote aerosol can sprayers, for example U.S. Patent No. 6, 260,275 but this design is too complicated in that it requires a series of pulleys. U.S. Patent No. 4,089,440 is cumbersome to assemble as it requires bands and fasteners to be applied to the aerosol can.  
20 Therefore, a need exists for a remote actuator for an aerosol can that is simple to operate, simple to attach to aerosol cans and uses few moving parts.

## SUMMARY OF THE INVENTION

A remote actuating device for a pressurized dispenser is disclosed. The device includes a pressurized dispenser attachment and actuator portion having a nose portion and a trigger portion. The nose portion is adapted for coupling the device to the dispenser by resiliently deforming to fit within an annular channel of the pressurized dispenser. The trigger portion is operable to depress or release an actuating member of the pressurized container. The trigger portion is a lever having one end which, in use, is in contact with the actuating member of the pressurized dispenser and an opposite end which, when operated, causes the opposite end to depress or release the actuating member of the pressurized container. The device also includes a pressurized dispenser handling portion having a flange attached to a hollow cylindrical rod attachment portion and the pressurized dispenser attachment and actuator portion. An actuator cable is attached at one end to the trigger portion and at least partially disposed within an actuator cable sheath. A rod is attached to the hollow cylindrical rod attachment portion.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an embodiment of the present invention;  
FIG. 2 is a vertical cross-section through an embodiment of the invention;  
FIG. 3 shows the device of FIG. 1 in combination with a pressurized dispenser;

FIG. 4 is a view from beneath the nose portion of FIG. 1, taken along line 3-3 of FIG. 1;

FIG. 5 shows the butterfly molding which is folded to form the body of FIG. 1;

5        FIG. 6 is a perspective view of an embodiment of the present invention with the spool attached;

FIG. 7 is an enlarged view of the actuator cable attachment according to an embodiment of the present invention; and

10        FIG. 8 is a rear view of an embodiment of the present invention.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

While the invention is susceptible of embodiment in many different forms, there is described in detail a preferred embodiment of the invention. It is to be understood that the present disclosure is to be considered only as an example of 15 the principles of the invention. This disclosure is not intended to limit the broad aspect of the invention to the illustrated embodiments. The scope of protection should only be limited by the claims.

Referring to Fig. 1, the present invention generally comprises two main portions: a pressurized dispenser attachment and actuator portion A and a 20 pressurized dispenser handling portion B.

A preferred embodiment of the pressurized dispenser attachment and actuator portion 1 is shown in Figs. 2-5. Referring to Fig. 2 the pressurized dispenser attachment and actuator portion 1 comprises a body 1 including a

portion 2 adapted for coupling to a pressurized dispenser and a handle 3. The handle is provided internally with cooperating portions in the form of press-studs 4 which snap together to aid assembly of the body. Indeed, as shown in Fig. 5, in the embodiment shown, the body is molded as a single item in the form of mirror image halves joined at the upper edge 19 in a "butterfly" configuration. To produce the body the butterfly is folded along the joined edge and the co-operating portions 4 are snapped together to secure the two halves of the body together. Referring to Fig. 2, since this figure illustrates the body along the mid plane where the two halves meet, the raised, touching portions are not cut and not shown as cross hatching, except at the top edge along which the molding was folded. For illustrative purposes, the "raised" parts of the mold half shown in Fig. 2 which touch the other half are shown spackled. Although the two halves of Fig. 5 are described as "mirror images," it is of course understood that there are deviations therefrom. Specifically the studs of one half will be smaller than the studs of the other half so as to snap thereinto. The pin 8 need be formed in one side only, abutting the surface 8A in the other half. And the pins 15 in the nose portion 10 and the tail portion 11 of one half will mate with holes 15A of the other half.

The device includes an actuating means which is operable to depress or release the actuating member of the dispenser to which the device is intended for attachment, which actuating means comprises a lever 5 having one end 6 which, in use, is in contact with the actuating member of the dispenser, and an opposite end 7 in the form of a trigger extending outside the body. The lever 5 is pivotally

mounted at pivot point 8 within the body of the device, the pivot point being constituted by a pin formed on one half of the body during the molding procedure.

In use, the application of pressure by pulling the trigger 7 causes the lever 5 to pivot about point 8 and hence causes depression of the end 6 and thus of the actuating member of the dispenser. The actuating member of the dispenser is, as is well known, effectively spring loaded by the pressure contained within the dispenser. Thus when attached to a dispenser, release of the trigger 7 will automatically mean that the actuating member moves upwards against the end 6 and hence the lever 5 pivots back into the "inoperative" position of the trigger. However, when the device is not attached to a dispenser, the trigger 7 apparently flaps freely adjacent the handle. Thus for reasons of appearance the embodiment shown includes a spring for reaction against the body. The spring is in the form of a resilient strip 9 integral with and extending from the lever 5 to the upper portion of the body; this effectively maintains the trigger in the "inoperative" position when the device is not attached to a dispenser and, of course, when the trigger is not being pulled by the user.

Referring to Figs. 2 and 4, the portion 2 adapted for coupling to the dispenser comprises a nose portion 10 and a tail portion 11. Each of these two portions has a lip 12 to suit an annular channel opening towards the actuating member of a dispenser to which attachment is intended. The nose and/or tail portions are resiliently deformable and are shaped such as to be engageable in substantially diametrically opposed regions of the channel. Deformation of the nose and/or tail portions is permitted, apart from the natural resilience of the

polypropylene from which the illustrated embodiment is formed, by means of an effectively cantilevered configuration, the two components of the cantilever being spaced by a channel 13 in the flat sides 17 of the nose and tail portions. The portions which in use actually engage the dispenser are part annular to provide  
5 good grip with the valve assembly. The embodiment shown is formed by a "butterfly" molding process, and so necessarily the body is in two sections linked across a common "spine" 19, as shown in Fig. 5. One section of each of the nose and tail portions has a molded pin, 15 and the other section has a mating hole 15A; the pin 15 in the hole 15A prevents movement in the member once the fold  
10 along the "spine" 19 has been made, thus conferring a degree of rigidity on the respective nose and tail portions which may not be present before assembly is completed.

Use of the embodiment shown in Fig. 2 is illustrated in Fig. 3, which shows the device 1 attached to a pressurized dispenser 20 comprising a container  
15 21 and a valve arrangement 22. For clarity, a part of the coupling means of the device has been omitted. The dispenser has a conventional upper shoulder 23. The valve section of the dispenser includes an actuating member 24, that is the conventional button which is usually depressed by the index finger in operation of the dispenser, and an annular channel 25 which opens inwardly towards the  
20 actuating member. The device is attached to the dispenser by virtue of cooperation between the lips 12 of the nose portion 10 and tail portion 11, and the walls of the channel 25. In attaching the device to the dispenser, the nose portion 10 is first inserted completely into the appropriate part of the channel 25 without the need

for any deformation to take place. Thereafter the device is pivoted about the nose portion 10 with respect to the dispenser until the tail portion 11 is "snapped" into a diametrically opposed portion of the channel 25, by virtue of its resilient deformation. Detachment of the device from the dispenser is the reverse of this operation. As may be seen from Fig. 2, pressure on the trigger 7 will cause the lever end 6 to move downwards and hence to depress the actuating member of the dispenser and release a spray of the pressurized active ingredient contained in the dispenser through the open front of the device.

As is mentioned above, the device shown in the drawings is formed from plastics materials such as polypropylene or nylon, by a "butterfly" molding technique, and so may have constructional aids and strengthening members which are not shown. It is not essential that the material from which the trigger is molded should be the same as that of the body. The stiffness of the sections constituting the nose and/or tail portions is such that they are resilient enough to permit coupling in the manner described, and rigid enough to permit supportive attachment as required. Indeed the embodiment shown is of a configuration and rigidity such as permits ready attachment to a dispenser while using only one hand, and also may be supportively attached to conventional dispensers even allowing for the range of tolerance in the size of valve assemblies which are usually supplied to the market.

Referring to Figs. 1, 6 and 7, the pressurized dispenser handling portion 2 comprises a flange 26 attached to a hollow cylindrical rod attachment portion 27 by a thumbscrew 28. The flange 26 is attached to the handle 3 with fasteners 29.

An actuator cable 30 is disposed within an actuator cable sheath 31 and extends through the trigger 7. The actuator cable 30 is maintained within the trigger 7 by an actuator cable retainer 33. The actuator cable sheath 31 is threaded into the handle 3 at one end and secured to the rod attachment portion 27 at an opposite end by suitable strapping 32. The hollow cylindrical rod attachment portion 27 defines a central threaded bore for receiving a rod 34. The rod 34 may be of the telescoping or non-telescoping type. The flange 26 further defines a bore 36 for receiving a fastener 37 and a thumbscrew 38 used to attach an actuator cable storage spool 35 (shown attached in Fig. 6 and detached in Fig. 7). The actuator cable 30 is wound upon the actuator cable storage spool 35 when not in use.

Referring to Fig. 8, it can be seen that the attachment of the flange 26 to the rod attachment portion 27 is accomplished by mating triangular notches 39 on the flange 26 and rod attachment portion 27. By loosening the thumbscrew 28, rotating the flange 26 and rod attachment portion 27 with respect to one another, and retightening the thumbscrew 28, the orientation of the can 21 with respect to the rod 34 can be altered.

The present invention is used by attaching the pressurized dispenser 21 and the extension rod 34 to the pressurized dispenser attachment and actuator portion A. Next, the actuator cable 30 is unspooled from the actuator cable storage spool 35. The orientation of the flange 26 with respect to the rod attachment portion 27 is altered if necessary, as described above. Next, the pressurized dispenser 21 is raised to the appropriate location and the actuator

cable 30 is pulled downwardly. As a result, the trigger 7 is pulled which in turn operates the actuating member of the pressurized dispenser to release the paint.

While a specific embodiment has been described, numerous modifications come to mind without significantly departing from the spirit of the invention, and  
5 the scope of protection should only limited by the scope of the accompanying claims.